Revisiting McLuhan's Thesis: The Medium is the Message

By Richard Loring Taylor

In 1994 the English Department in the College of Arts at Sultan Qaboos University in the Sultanate of Oman took possession of a new language laboratory. This facility consists of several sectors--a classroom facility, a self-access center, a technician's room, a sound room, a desktop publishing center, and a phonetics laboratory. A research component (phonetics laboratory, sound room, etc.) supports the teaching component (classroom and self-access facilities); e.g., students may record their voices in the sound room for analysis in the phonetics laboratory so model tapes can be produced for the classroom or self-access facility. This language laboratory is at the cutting edge of technology and is likely to remain so until a full virtual-reality system is available. The facility is multimedia featuring various combinations of audio/ video input and output; and it is interactive, in the sense that the system provides feedback for all student input.

Input devices include VCR's, audio tapes, television via satellite (20 channels), CD-I's (Compact Disc Interactive), laser disc players, computer software, scanners, cameras, mainframe, e-mail and Internet connectivity, a stack of eight CD-ROM readers accessible to the network, and individual CD-ROM readers connected to color LCD panels. The laboratory was designed by Auditek in Finland and was installed by a local trading company in Oman. One may envisage the facility as consisting of several levels with some degree of interconnectedness among them.

The purpose of this paper is to discuss how the various features of the lab (the medium) influence the language teaching tasks and hence the goals of those tasks (the message).

Prisma and the Audio System

The core of this facility is a traditional audio language laboratory. Such audio laboratories have been around for over forty years and have undergone many levels of testing and refinement. In this Auditek lab, the student tapes have all been isolated in a separate, controlled compartment to protect them from the students and the desert environment. Also in this lab, the teacher has a choice of two tape players which can be used for model tapes.

In the traditional audio laboratory, essentially two types of tasks could be done: The student could both read and listen to a text at the same time. In a sense, this activity could be described as multimedia. The student could also listen to a model of speech, then record his own voice, and compare the differences. In this sense, the activity could be described as interactive.

In the present Auditek system, the teacher controls the students via a computer running a software called *Prisma* . This software uses windows and icons but apparently is not written in *Windows* --a subtle distinction which may have implications for compatibility. The software allows the teacher to arrange the class into any grouping which might be desired. Individual

students are identified with icons, and a student can be added to a group simply by clicking the icon. Each group can then be linked to a particular input device. This grouping facility allows the teacher or an individual student to act as a source or model for a particular group (which may of course include the whole class). It also permits a limited number of students to form a discussion group and allows two students to engage in a "telephone" conversation within the structure of the lab.

This capability extends the resources of the traditional language lab and enhances the potential of an ordinary classroom through the structured nature of the interaction. For example, students in opposite corners of the classroom may telephone each other; or a good student can serve as a model for a weak student without disrupting the rest of the class. In other words, the language-teaching potential of the grouping facility can be realized if the teacher understands the materials s/he is trying to convey and those needs of each member of the class who would benefit from some highly-structured grouping.

Another feature of *Prisma* is the testing system. In the Auditek facility, the testing system is usually linked to the camera, which serves much the same function as an overhead projector. The teacher places a sheet of questions under the camera, and this sheet is distributed to all student monitors. The questions are of the multiple choice or true/false format. All students answer the questions together and are allowed a specific time for each question, as designated by the teacher. The testing format pre-empts the student audio control unit as an answering device.

The *Prisma* testing system almost instantly calculates the grade for each student as well as the mean, standard deviation, and skew for the test as a whole. It is also able to do a complete item analysis. The system thus provides almost instantaneous evaluation of the validity of the test itself as well as the performance of each student. The ready availability of such a capability raises the prospect that teachers may be held responsible for devising testing instruments which meet some specified level of reliability.

While the students are taking a test on the *Prisma* system, they cannot access the computer as a computer, since the screen is taken over by the video distribution system coming from the camera, and the station is dominated by the use of the audio control panel. This means that the system is subject to the limitations of the physical equipmentthe camera itself and the video distribution network. In addition, the video distribution wiring is very vulnerable to electrical interference, which may cause the students' screens to waver or change color.

If *Prisma* itself were written in *Windows* , then tests could be entered into the computer, and students could take the tests using two windows or a split screen, one for the test and one for the answer sheet. The answers could be identified with a mouse. The camera could be linked to a scanning or reading device which would allow the test to be directly entered into the computer. The test could then be connected or interfaced to the present Auditek testing system, with its advantageous features. In this way the testing system could be used for self-testing, and students could proceed through a test at their own pace if the teacher allowed them to do so. Since what a teacher can test has an influence on what he can teach, the physical constraints of the testing system need to be taken into account from the moment the teacher starts to plan his lesson.

The Proxy System

Proxy is not a normal part of *Prisma* , nor was it ordered by the Department. It was provided as an extra option by the vendor. *Proxy* is a *Windows* -based network software which allows one station on a network to take complete control of another station. This powerful, sophisticated system allows the teacher not only to scan or monitor but to take control of a student computer. The teaching implications for any task involving the computer itself--including but not limited to learning how to use a computer--care obvious.

Since *Proxy* is a *Windows* -based system while *Prisma* is not, the two systems are not directly compatible. Hence it is necessary to exit one in order to go into the other. But since both have similar functions as classroom control systems, it is frequently inconvenient to leave one in order to enter the other. The teacher can only use *Proxy* as a classroom control system if most or all of the members of the class are performing tasks which must be monitored by that system.

There is another feature of *Proxy* which deserves attention. In the existing configuration, only the teacher can control student positions. However, it is possible to imagine a situation in which the class is divided into two groups, one more advanced than the other. Each person in the more advanced group is tutoring a person in the less advanced group. In this case, students should have viewing or control rights over other student positions. With viewing rights, the tutor can see what the weaker student is doing and advise him through the telephone system. With complete rights, the tutor can take control of the other student's position. The assigning of such rights in *Proxy* must be done by someone who has supervisory-level access into the network; and the teacher normally does not have such rights. A teacher planning such a lesson should work out the details with the Network Supervisor. The availability of *Proxy* suggests that teachers should give serious consideration to lesson formats which would exploit this potential.

The CD-ROM Stack and Other Disc Storage Devices

This multimedia laboratory has a stack of eight CD-ROM readers. At present, two discs are installed- *Microsoft Toolbook* and a *Multimedia Encyclopedia* . When all eight readers are full, the system has a potential capability of a million and a half pages of A-4 script--all available to every student position at the click of a mouse. This stack transforms the language laboratory into an information system, providing almost instant access to the equivalent of a small or medium-sized library. Additional discs can, of course, be added or changed at any time. *In Microsoft Toolbook* , searches can be conducted with amazing speed. The availability of this resource could prompt teachers to build their lessons around it. But before teachers give in to this temptation, there are certain considerations which should be born in mind.

Signals from the stack are carried to the individual student computers. These are computer signals carried *through Novell Netware* . The signals must be maintained in files which are marked by the Novell system as "shared." However, a number of interactive language learning programs available on CD-ROM disc contain information stored on two bands-one in digital format for computer information and the other in analogue for audio or video information.

The audio and video information is transformed into digital information by sound and video cards inside the individual computers. This provides the interactive, multimedia effect advertised on these discs. However, it is difficult to carry simultaneous digital and analogue signals around a room since they are carried in different networks. The only CD-ROM discs which will function in a network are those which are clearly designated as "Network Version." This includes many discs which have information in the form of some encyclopedia, but excludes many other discs, which have information stored in different formats. Movies on compact disc, for example, may be stored in analogue form and translated by the sound and video cards at the individual PC. Unless this distinction is clearly understood, one may think that s/he is buying something other than what it is. CD-ROM discs that are advertised as multimedia and interactive but not available in Netware versionscannot be used in a laboratory unless each station has a CD-ROM reader with individual copies of each disc or title.

The point that applies above to CD-ROM drives also applies to other formats advertised as offering multimedia interactive language learning programs. These include laser disc readers. A single laser disc may contain three times the amount of information available on a compact disc. With this quantity of storage, a laser disc may provide language-using scenarios, such as a business meeting in real time. Since the entire scene itself is stored on the disc in digital or computer format, it can be manipulated in all sorts of ways, as by providing simultaneous text and/or translation into other languages. The laser discs are obviously far more satisfying to use than the stilted figures and awkward speech available on many computer and CD-ROM programs. But the limitation of Laser Readers is the cost. Not only are the readers expensive, but each disc may cost over a thousand dollars. A single language learning title for an ordinary lab could therefore cost over thirty thousand dollars for the discs alone.

Another format which offers multimedia interactive language learning programs is CD-I (compact disc interactive, a Phillips product). This comes on a disc the same size as a compact disc, but employs different protocol. This provides text and graphics with which the student can interact. For some reason, the signal from this device can be carried around the network, but the interactive feature cannot. As far as the computer is concerned, these appear to be shared read-only files; and the student has an experience that might be called passive interactivei.e. the class can watch one specific student interacting with the program. If such a system is used for training future teachers, they might be able to comment on the pedagogical value of this passive viewing.

At the present state of technology, the various storage devices can be used effectively in a network emphasizing pure storage and retrieval of information. However, many multimedia interactive language learning devices or programs do not fit very well on a network environment. One is therefore strongly tempted to use the information storage and retrieval capability as a language-learning vehicle, more or less by default rather than by intention. But was information storage and retrieval ever intended as a primary vehicle for language learning? To put the question another way, before there were computers or language labs, did people learn language by reading encyclopedias and dictionaries? Perhaps some people did. But one problem with using information storage and retrieval systems as a language-learning vehicle is that it is very difficult to get the level of use right, given the quantity of information potentially available. It is

no small task to find a million and a half pages of information set at a precise non-native speaker level. It is difficult enough to find one page set at a particular level.

Television and Video Blaster

Connected to the system are two satellite receivers (Star and ArabSat), providing around twenty channels of television. Star contains BBC, and ArabSat contains CNN. From any student position there is the capability of taping a program directly or setting the VCR to tape a program at a particular time. However, since there is only one receiver (at the teacher's station) students at different stations in the lab cannot watch different programs. One receiver is required for every channel which can be viewed at any time. *Proxy* , at the teacher's station, contains the *Windows* capability of permitting a window to be opened and sized. The teacher can thus watch television in a corner of his screen while monitoring the class on the rest of the screen, but the student cannot watch television programming in conjunction with a word processing program. However, since the TV signal has been translated into digital coding by the video card, the student can capture an image from the television, store it in a file, and retrieve it into a document. Students can thus prepare reports on a television program that they have just watched.

Some Software

Word processing. At present, students may produce documents using *Word Perfect* or the text editing programs in either *DOS or Windows (Write).*

In the English Department at Sultan Qaboos University there are several writing courses as well as general language-skills courses with a writing component that have designated laboratory hours. Students actually produce documents--essays of various lengths--using the word processing facilities. This seems a paradox since most of these students do not know how to type, and they do not have the time to take the self-tutoring typing program called *Master Type* . As a result, most students hunt and peck, but, surprisingly, they can write (compose) and print a five paragraph essay in about two hours. It takes about half an hour for twenty students to print their documents using the laser printer on the network.

One tangible benefit of using the word processor in teaching writing is that it sets a certain standard for the appearance of work which is turned in. With a word processor, neat appearance of student documents is a realistic expectation.

But there is something else. When students rewrite a handwritten composition, they tend to start making the same mistakes all over again. But when they make specific corrections on a document which is on the screen in front of them, they tend to concentrate more on the corrections. Other features of the correction facility in word processing may facilitate the writing process. When students write a composition, their thinking tends to be linear. That is, one sentence follows another. But the word processing capability of moving around blocks of text

frees students to see how sentences, phrases, or paragraphs can fit together in new ways. Revision of a composition becomes easier if one does not have to write out every version by hand. Whether one is talking about mistakes in spelling or grammar or revision of the entire composition, doing the composition on a word processor allows the student to concentrate on the mistake itself. And through being able to concentrate on the mistakes, the student can perceive the production of a "perfect" paper as an achievable goal. The "medium" in this case is very much the "message."

Toolbook . Since it is difficult to find commercial material set at a suitable level for one's students, the teacher may be forced to produce his/her own material. Authoring packages, such as *Toolbook* , make this task easier. One thing which can be done with *Toolbook* is to take a text which one has previously determined to be at a reasonable level for the students and enter it into the computer. Then all the difficult vocabulary items can be identified as "hotwords" which are converted into some italic font. Students may click these "hotwords" with a mouse in order to find a definition of the item. One may even have embedded levels of "hotwords." This device allows students to read the text at their own speed and level, looking up necessary words without losing the train of thought in the text. This device may encourage development of depth and speed of reading without sacrificing one for the other, as is frequently done in other reading formats.

Microconcord . This is a concordance system produced by Oxford. A large variety of "authentic" texts has been assembled including newspaper articles. With the *Concord* search facility, one may scan these texts for particular words, which can be brought up within the context in which they are used. This gives students a sense of the way in which the words are used in context as well as the percentage of time particular meanings of a certain word are used. This package serves various purposes, including providing correct models of words frequently misused by students, as well as acquainting them with a range of usage. This type of instrument may be more suitable for advanced students than for the lower levels.

Novell Netware 4.01. The system is managed by a file manager, and the various stations are connected together *by Novell Netware 4.01.* This software product has a number of features, including security, rights, storage allocation, printing queues, etc.

These features are set during the configuration of the system, and it is very important that the academic staff coordinate with the technical staff during the process of configuring the system. Although *Novell Netware* is very flexible, it has certainly not been specifically designed for a language lab environment. Great care needs to be given to every aspect of the configuration. For example, should operating systems (like *Windows*) and user software (like *Word Perfect*) be put on the individual work stations or should they be put on the file server? If operating systems are put on the individual stations, students may alter the system files in unpredictable ways.

What specific rights should students or teachers have? Should students have their own ID or password, with specific rights assigned? Or should they gain increasing rights as their skills develop? The faculty should understand the implications of various configurations before these get locked into the system.

Conclusion

The language laboratory offers different levels of capabilities--audio, video, word processing, information retrieval, networking, etc. Within these various levels, the system is very powerful; however, the interface between these various levels frequently is limited. On occasion, certain language learning tasks fall between these levels, and this is where the system is most vulnerable. If one wants to remain within a level--such as watching television, looking up structured information, etc., one rarely faces difficulties. However, these particular tasks may not accomplish the language learning goals set by the teacher or the students themselves. If the system does a particular operation very well, should one accept this and adjust the pedagogical goals to exploit the strengths of the system, or should one concentrate one's efforts on trying to force the system to do what pedagogically seems right?

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